CHAPTER 2
OPERATING INSTRUCTIONS FOR TWGSS

Section I. PREPARATION FOR OPERATION

2-1. PRELIMINARY INSPECTION INSTRUCTIONS.

a. Perform *Before* operation Operator/Crew Preventive Maintenance Checks and Services (PMCS) (see TM 9-6920-709-12&P-1-1).

b. Inspect all tank connectors for dirt and damage prior to installing system components.

2-2. VEHICLE PREPARATION INSTRUCTIONS.

WARNING

Tank MUST be equipped with laser rangefinder (LRF) eye-safe laser filter (ELF) during ALL training exercises. Failure to follow this warning may result in injury or blindness to personnel.

a. Ensure LRF ELF is installed (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

NOTE

Improper boresighting of vehicle will result in poor training results.

b. Perform prepare-to-fire checks and boresighting procedures (see FM 17-12-1-1, TM 9-2350-255-10-1, or TM 9-2350-264-10-1).

c. Using manual turret and gun controls, position main gun over right #2 road wheel (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

WARNING

Gun must be locked to turret roof and turret traverse lock must be engaged before installing or removing components/cable assemblies under main gun. Failure to follow this warning may result in injury or death to personnel.

d. Secure main gun to turret roof with elevation lock and position turret traverse lock in LOCKED position (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

e. Remove main gun muzzle plug and inspect and clean interior of muzzle (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

f. Inspect and clean gunner's auxiliary sight (GAS) optical port for dirt and debris (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

g. Remove loader's periscope from loader's hatch and stow periscope in left turret storage box (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

h. Remove computer electronics unit (CEU) protective guard from turret floor, using 9/16 in. socket.

I. Input the following computer correction factors using gunner's computer control panel (CCP) (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1):

NOTE

Enter the following data with MANUAL INPUTS.

Ammunition	Sub-designation	Azimuth	Elevation
M1 HEAT M456A2	0	0.00	-0.60 Up
M1 SABOT M900	0	-0.2 Left	-0.40 Up
M1A1 HEAT M830	0	-0.25	+0.37 Do
M1A1 SABOT M829A1	5	Left 0.00	-0.45 Up

j. Input the following ballistic simulation data using gunner's CCP (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1):

NOTE

Leave CANT, LEAD, and RANGE buttons in normal operation.

(1) Set crosswind sensor value to 0 mph and cancel out automatic input (leave button lit when CCP is switched OFF).

(2) Set ammunition temperature to 69.8° F.

(3) Set air temperature to 59° F.

(4) Set barometric pressure to 29.92 in. of mercury.

(5) Set coax boresight azimuth and elevation values to same as main gun boresight values.

(6) Set coax zero to 0.0 0.0.

NOTE

Perform step (7) for M1 only.

(7) Set gun tube wear to 0.0 in.

WARNING

Vehicle master power switch, turret power switch, and turret networks box (TNB) utility power switch must be in OFF position before installing system components. Failure to follow this warning may cause turret or main gun movement, resulting in injury or death to personnel.

k. Place vehicle master power switch and turret power switch in OFF position (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

l. Place turret networks box (TNB) utility power switch in OFF position (see TM 9-2350-255-10-1 or TM9-2350-264-10-1).

WARNING

ALWAYS refer to the Improved Tank Gunfire Simulator (ITGS) (Hoffman Device) operator's manual (see TD 17-6929-702) prior to installing, removing, loading, or firing simulator. Failure to follow this warning may result in injury or death to personnel.

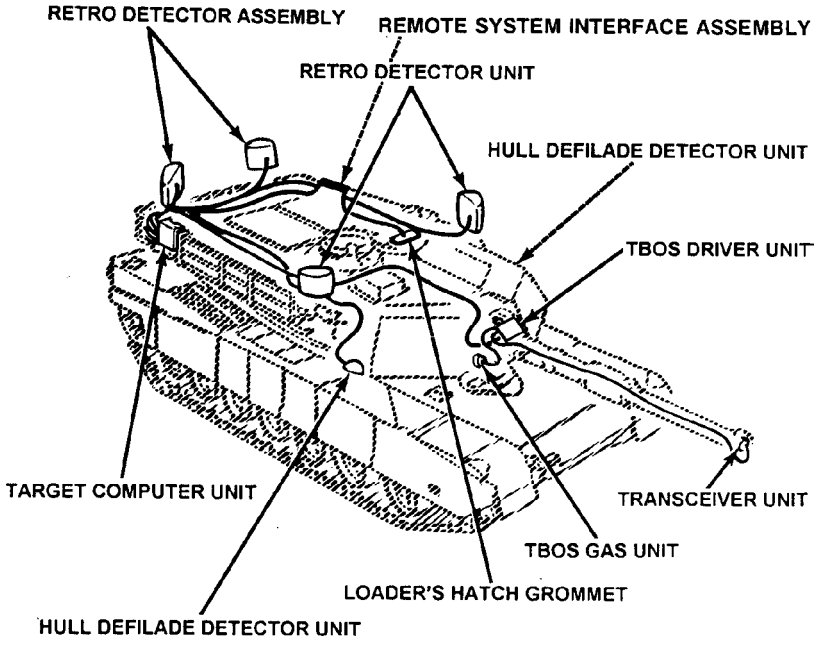
2-2. VEHICLE PREPARATION INSTRUCTIONS (Con't).

WARNING

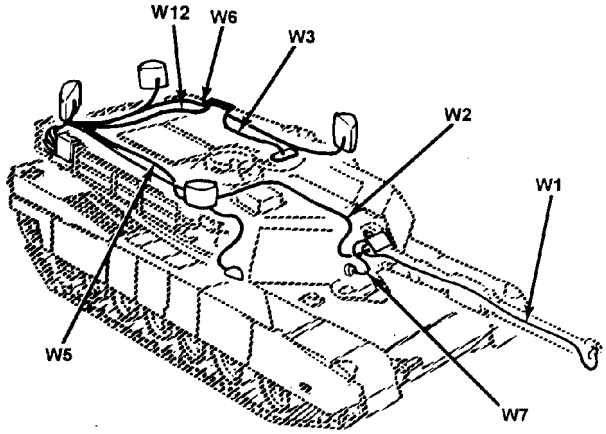
DO NOT connect or disconnect Improved Tank Gunfire Simulator (Hoffman Device) unless vehicle master power switch is in OFF position and simulator safety switch is in OFF position, with key removed. Failure to follow this warning may result in injury or death to personnel.

m. Install Improved Tank Gunfire Simulator (ITGS) (Hoffman Device) (see TD 17-6920-702).

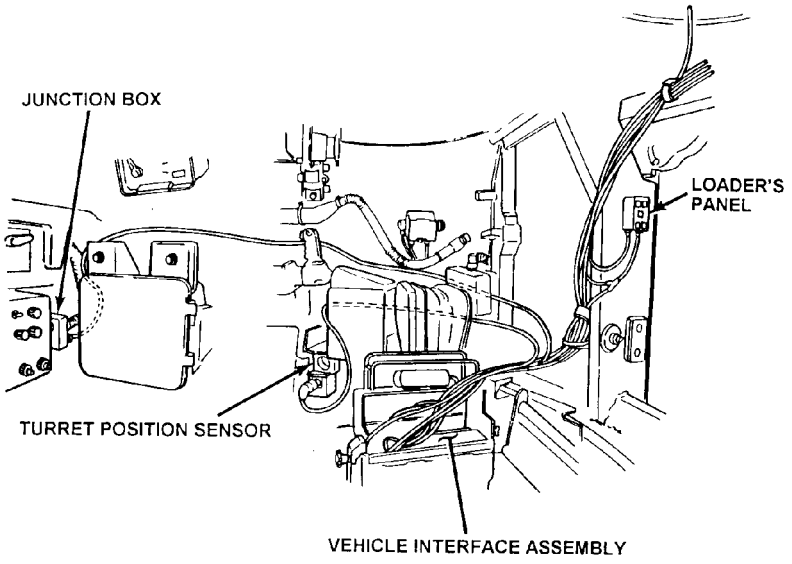
2-3. INSTALLATION OF EXTERIOR COMPONENTS.



2-4. INSTALLATION OF EXTERIOR CABLES.

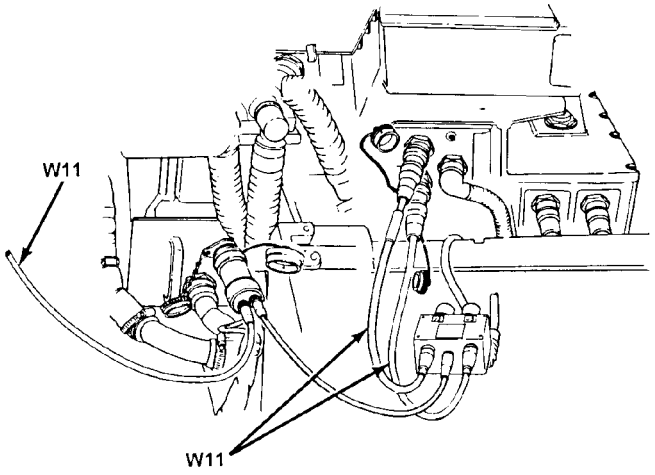


2-5. INSTALLATION OF INTERIOR COMPONENTS.

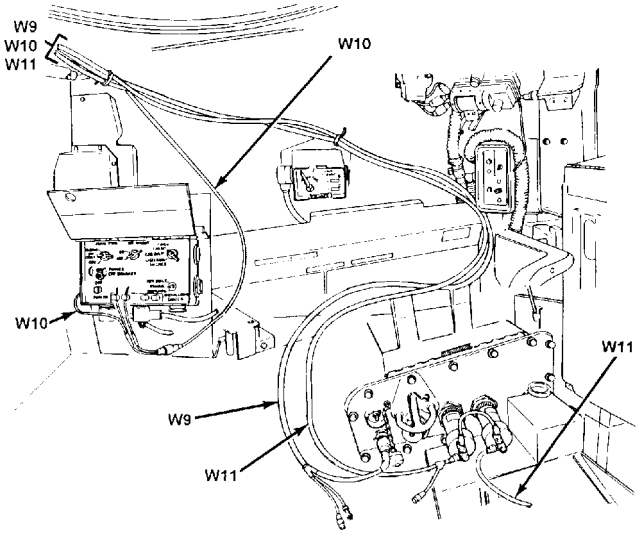


2-6. INSTALLATION OF INTERIOR CABLES.

a. **Turret Front Wall.**



b. **Turret Left Wall.**



2-7. ALIGNMENT PROCEDURES.

NOTE

Alignment MUST be performed in strict accordance with instructions provided to ensure proper training results.

a. **Alignment Target Placement.**

(1) Position a target panel as close to 1200 meters away from the tank as possible. Target panel should be placed so that main gun is over the front of the tank when main gun is aligned with target panel.

(2) Mount a retro reflector unit on target panel.

b. **Vehicle Preparation and TWGSS Startup.**

(1) Place vehicle master power swtich in ON position (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

(2) Place turret power switch in ON position (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

(3) Set gun/turret drive switch in MANUAL position (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

WARNING

If a fire control malfunction is indicated on the commander's control panel or in the gunner's primary sight (GPS), IMMEDIATELY set gun/turret drive switch to MANUAL position and vehicle master power switch to OFF position. Failure to follow this warning may cause turret or main gun movement, resulting in injury or death to personnel.

(4) Verify that fire control malfunction lamp on commander's control panel does NOT indicate a malfunction. If a malfunction is indicated, perform operator/crew troubleshooting (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

(5) Place TNB utility power switch in ON position (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

c. **System Alignment.**

(1) Select AL and press ENTER.

NOTE

When AL is selected and ENTER is pressed to select an alignment submenu, the following pop-up screens appear. Ensure that the information on the pop-up screen matches vehicle setup. Press ENTER to continue after each setting.

(2) Place gun select switch in MAIN position (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

(3) Set fire control mode switch to MANUAL (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

(4) Place GPS magnification lever in 10X position (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

(5) Press ENTER.

(6) Open CCP door and set CCP power switch to ON position (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

(7) Use keypad to enter 1200 m into fire control system (FCS).

(8) Select SABOT.

(9) Press ENTER on control panel to continue.

(10) Press and release gunner's control palm switch (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

(11) Press ENTER on control panel.

(12) Press ESC.

d. **Cant Alignment.**

(1) Press CANT on CCP (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

(2) Select AL and press ENTER.

(3) Select CA on control panel and press ENTER.

NOTE

Cant angle of transceiver unit is displayed on control panel.

(4) Have loader lower transceiver unit locking handle and slowly rotate transceiver unit until control panel displays same cant angle and direction as CCP. Values indicated on CCP and control panel should be within ±0.5° of each other.

CAUTION

Ensure that transceiver unit is properly LOCKED into mounting bracket by checking that transceiver unit locking handle is in raised position. Failure to perform this check may result in transceiver unit falling out of mounting bracket and becoming damaged.

(5) Have loader raise transceiver unit locking handle to locked position.

(6) Press ESC.

(7) Cancel CANT on CCP (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

e. **Laser Alignment.**

(1) Select AL and press ENTER.

(2) Select LA and press ENTER.

(3) Press boresight on CCP (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

(4) Press ENTER on control panel.

(5) Using gunner's manual controls while looking through GPS, lay GPS aiming point on center of retro reflector unit mounted on target panel.

(6) Select R and press ENTER.

NOTE

- **DO NOT adjust lay of main gun at any time when performing steps 7 and 8.**
- **Ensure that only one retro reflector unit is visible within field of view.**
- **The target hit deflection and range-to-target are displayed on the control panel display screen after pressing ENTER three times.**

(7) Select M and press ENTER.

(8) Press ENTER a minimum of three times.

NOTE

If SAVE is selected prior to three laser measurements, a pop-up screen appears.

(9) Select S and press ENTER.

NOTE

If ESC is pressed while a pop-up screen is displayed, measurement is not saved. A pop-up screen appears.

(10) Press ESC.

f. **<u>TBOS GAS Alignment</u>.**

(1) Select AL and press ENTER.

(2) Select a target with a dark background to allow for better observation of TBOS effects.

(3) Select GA and press ENTER. An aiming cross with an alignment dot appears in the GAS.

(4) Select R and press ENTER.

(5) Select AL and press ENTER. Only the aiming cross appears in the GAS.

NOTE

When alignment is selected, TBOS alignment steps are displayed on control panel.

(6) Rotate aiming cross until aligned with reticle, using up/down arrow buttons. Cross is properly positioned when it rests directly over the GAS boresight cross. Shorter vertical line in aiming cross MUST point downward.

(7) Press ENTER to save and continue alignment.

(8) Using up/down arrow buttons, adjust position of TBOS dot until dot is level with reticle boremark.

(9) Press ENTER to save and continue alignment.

(10) Using left/right arrow buttons, adjust position of TBOS dot until dot is level with reticle boremark.

(11) Press ENTER to save.

NOTE

After ENTER is pressed, the TBOS alignment reticle is displayed. If not properly aligned with sight reticle, repeat steps 4 through 11.

(12) Press ESC.

g. **TBOS GPS Day Alignment.**

(1) Select AL and press ENTER.

(2) Select a target with a dark background to allow for better observation of TBOS effects.

(3) Select GD and press ENTER.

(4) Set GPS FLT/CLEAR/SHTR switch to CLEAR position and TIS switch to STANDBY (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1). Press ENTER on control panel. Only the alignment dot appears in the GPS.

(5) Select R and press ENTER.

(6) Select AL and press ENTER.

NOTE

When alignment is selected, TBOS alignment steps are displayed on control panel.

(7) Using up/down arrow buttons, adjust position of TBOS dot until dot is level with reticle aiming point.

(8) Press ENTER to save and continue alignment.

(9) Using left/right arrow button, adjust position of TBOS dot onto reticle aiming point.

(10) Press ENTER to save.

NOTE

After ENTER is pressed, the TBOS alignment dot is displayed. If not properly aligned, repeat steps 5 through 10.

(11) Press ESC.

h. **TBOS GPS Thermal Alignment.**

(1) Select AL and press ENTER.

(2) If a white hot is selected, use a target with a dark background to allow for better observation of TBOS effects. If a black hot is selected, use a target with a white background (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

(3) Select GT and press ENTER.

(4) Set GPS FLT/CLEAR/SHTR switch to SHUTTER position (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1). Press ENTER on control panel.

(5) Move TIS thermal mode switch from STBY position to ON position. Press ENTER on control panel. Only the alignment dot appears in the GPS.

(6) Select R and press ENTER.

(7) Select AL and press ENTER.

NOTE

When alignment is selected, TBOS alignment steps are displayed on the control panel.

(8) Using up/down arrow buttons, adjust position of TBOS dot until dot is level with reticle aiming point.

(9) Press ENTER to save and continue alignment.

(10) Using left/right arrow buttons, adjust position of TBOS dot onto reticle aiming point.

(11) Press ENTER to save.

NOTE

After ENTER is pressed, the align TBOS screen is displayed. If further adjustment is required, repeat steps 6 through 11.

(12) Press ESC.

I. **TPS Alignment.**

(1) Select AL and press ENTER.

(2) Position main gun over driver's hatch and centered between headlights.

(3) Select TP and press ENTER.

(4) Press ENTER to save.

(5) Press ESC.

(6) Press ENTER on CCP to leave boresight mode (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

(7) Close CCP door (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

2-8. SETUP PROCEDURES.

a. **Backlight.**

(1) Select SU and press ENTER.

(2) Select BL and press left arrow button to turn backlight ON or right arrow button to turn backlight OFF. Press ENTER.

(3) Press ENTER.

b. **Contrast.**

(1) Select SU and press ENTER.

(2) Select CO and use left/right arrow buttons to change contrast. Press ENTER.

(3) Press ESC.

Section II. OPERATION OF TWGSS

2-9. GENERAL.

a. This section describes operation of the Tank Weapon Gunnery Simulation System (TWGSS). The crew operates the tank weapons systems in their normal mode of operation and crew input to TWGSS is not required except for the loader. The loader simulates main gun loading by pressing a pushbutton on the loader's panel which selects the type of ammunition as directed by tank commander.

b. The TWGSS training exercise is set up by the instructor using the Training Data Retrieval System (TDRS) computer unit. The instructor sets the ammunition allowance and obscuration burn time. Refer to TM 9-6920-711-12&P-1.

2-9. GENERAL (Con't).

c. Target engagement feedback is provided by the TWGSS in the form of audio tones and visual effects. When simulating firing on a target vehicle, the appropriate sound signature will accompany the loading and firing of the weapon. In the sight, the gunner can see the visual effects of firing obscuration, tracers, burst on target, and burst on ground. Listed below are the audio and visual effects provided during operation of the TWGSS.

(1) Audio tones and control panel messages indicate to target vehicles that they are under fire or destroyed.

(2) Strobe lights indicate to firing vehicle that the target is hit or destroyed.

2-10. CREW OPERATIONS.

NOTE

- **During an upload sequence, TWGSS transfers a full ready rack (turret) or remaining ammunition in semi-ready rack (hull).**
- **The remaining time of upload appears on control panel display screen.**
- **When ammunition has been uploaded, COMPLETED will appear on control panel display screen.**
- **Upload time is programmed on TDRS memory card by training controller.**
- **If ESC is pressed during an upload sequence, process is stopped and ammunition is not transferred.**

2-10. CREW OPERATIONS (Con't).

a. **Ammunition.** The crew can monitor remaining ammunition during an exercise using the control panel.

(1) Select SI and press ENTER.

(2) Select RM and press ENTER.

(3) To monitor main gun ammunition, select MW.

(4) To upload main gun ammunition, press ENTER.

(5) Select main gun ammunition to be uploaded using up/down arrow buttons.

(6) Press ENTER to start upload.

(7) To monitor coax ammunition, select CO.

(8) Press ENTER to start upload.

b. **Laser Rangefinder (LRF).** The crew can select either TWGSS rangefinder or tank rangefinder.

WARNING

Tank MUST be equipped with LRF eye-safe laser filter (ELF) during ALL training exercises. Failure to follow this warning may result in injury or blindness to personnel.

2-10. CREW OPERATIONS (Con't).

NOTE

- **If performing scaled training, TWGSS LRF must be selected.**
- **If vehicle master power switch has been set to OFF position and then returned to ON position, TWGSS LRF will automatically be selected.**

(1) Select LF and press ENTER.

(2) Using up/down arrows buttons, select LRF to be used and press ENTER.

2-11. RESULTS.

a. **General.** Results of the training exercise can be displayed numerically or graphically, or the result presentation can be turned off.

b. **Numerical Presentation.**

(1) Numerical presentation allows for immediate feedback and result presentation of hit coordinates and type of ammunition.

(2) Results are presented in a pop-up screen on the control panel.

(3) A pop-up screen appears until a new result is displayed or a control panel button is pressed.

2-11. RESULTS (Con't).

c. **Graphics Display (GD).**

(1) Graphic presentation allows for immediate feedback and is used for panel gunnery training exercises where display of the hit in relation to the target outline is preferred over actual hit coordinates.

NOTE

This screen identifies the target silhouette and hit position (+) in relation to target center of mass (+).

(2) Select SI and press ENTER.

(3) To view results graphically, select GD and press ENTER. Graphics display shows the target template of ammo fired.

(4) Press ESC to exit graphics display.

d. **Result Presentation Off.** For force-on-force exercises, the instructor can program the TDRS memory card to store the training results without displaying them on the control panel.

2-12. DESCRIPTION OF HIT RESULT.

a. TWGSS provides results for firing vehicles and target vehicles.

b. A fire result provides information in four areas:

(1) Engagement evaluation.

2-12. DESCRIPTION OF HIT RESULT (Con't).

(a) **HIT**. A HIT presentation indicates that the simulated round has hit the target. TWGSS assumes the target to be either a T80 Front (NATO standard size) for main gun rounds or a kneeling soldier for coax rounds. If the control panel indicates HIT, MILES codes are transmitted to enable the laser target interface device (LTID) to indicate.

(b) **GROUND HIT**. A GROUND HIT presentation indicates that the ammunition has fallen short or long. The range for the actual ground impact is presented.

(c) **MAX RANGE**. If the control panel indicates MAX RANGE, the ammunition has passed above the target and reached the maximum simulated range of the ammunition.

(2) Elevation and azimuth impact point on target in relation to center of mass.

(3) Actual range, in meters, to target.

(4) Type of ammunition fired.

2-13. TARGET RESULT PRESENTATION.

NOTE

During a force-on-force exercise, tank commander must check control panel for correct action if a HIT indication is announced by tank intercom.

A target result provides information in three areas:

2-13. TARGET RESULT PRESENTATION (Con't).

a. Effect of incoming round on vehicle (target system evaluation).

(1) **NEAR MISS**. A projectile has passed close to the vehicle. The crew can continue to fight.

(2) **HIT**. The vehicle is hit, but not damaged. The crew can continue to fight.

(3) **MOBILITY KILL**. The vehicle is damaged and immobilized by a hit. If the control panel indicates MOBILITY KILL, the crew must stop tank within 30 seconds or the vehicle will be permanently killed. When a vehicle has suffered a mobility kill, the crew can continue to engage targets with their weapons from a standstill position.

(4) **WEAPON KILL**. The vehicle is hit and the weapon system is damaged. The crew can move the vehicle, but cannot fire any weapons.

(5) **KILL**. The vehicle is hit and has sustained a catastrophic kill. The crew cannot move the vehicle or fire any weapons.

b. Aspect angle of incoming round. Aspect angle is divided into 12 sectors according to the clock.

c. Elevation and azimuth impact point on vehicle in relation to center of mass.

2-14. AUDIO INDICATIONS.

a. **General** . The system uses sound to indicate to the crew that different events have taken place.

b. **Audio Indications of Firing System.** During loading and firing of ammunition, the following audio indications are heard through the tank intercom:

(1) Opening of ammunition door. This occurs when the loader uses the loader's panel to load ammunition.

(2) Closing of breech block. This indicates that the round is chambered and ready to be fired.

(3) Main gun fire and ammunition case base ejection from breach. This indicates a successful firing of a round.

(4) Coax fire.

c. **Audio Indications of Target System.** When a TWGSS system is fired upon from other simulator- equipped vehicles, the tank intercom indicates that the vehicle is being fired upon.

(1) **NEAR MISS.** If the vehicle had a near miss, two "beeps" are transmitted on the tank intercom.

NOTE

Mobility kill and weapon kill are also indicated with 4-6 tones. In addition, the control panel informs commander of action to take.

(2) **HIT (NO KILL).** If the vehicle is hit by a round, but not killed, 4-6 tones are heard on the tank intercom.

2-14. AUDIO INDICATIONS (Con't).

NOTE

If panel gunnery training is used, the target system is auto-activated after 10 seconds. The audio indication stops and the system is operational. The kill is stored on the TDRS memory card together with auto-activation for after action review (AAR).

(3) **KILL.** A continuous tone is heard on the tank intercom for 30 seconds indicating a kill on the vehicle.

d. **System Errors.** Audio indication is also provided for system errors.

2-15. VISUAL INDICATIONS OF TARGET SYSTEM.

The target system indicates the effect of an engagement with the retro detector unit strobe lights. The following visual indications are given by the target system:

a. **NEAR MISS.** If a target receives a near miss, retro detector unit strobe light blinks 2 times.

NOTE

Mobility kill and weapon kill are also indicated with 4-6 indicators.

b. **HIT.** If the target is hit, but not killed, retro detector unit strobe light blinks 4-6 times.

2-15. VISUAL INDICATIONS OF TARGET SYSTEM (Con't).

NOTE

If panel gunnery training is used, the target system is auto-activated after 10 seconds. The indication stops and the system is operational.

c. **KILL.** If the target is hit and killed by a round or by a CGUN, detector unit strobe light blinks continuously until the system is reset by the CGUN.

2-16. CGUN INDICATIONS DURING OPERATION.

NOTE

Refer to TM 9-6920-711-12&P-1 for more information on the CGUN.

a. **CGUN KILL Message.** The instructor has the capability to kill vehicles during an exercise using the CGUN. If CG KILL appears on the control panel, the crew must stop the vehicle and await further orders. The CG KILL message, together with the time, is stored on the TDRS memory card for AAR.

b. **CGUN RESET Message.** The instructor has the capability to restore vehicles which have been killed during an exercise. If a vehicle is killed, then fired upon by a CGUN using RESET, the control panel stops indicating KILL and the strobe light and tank intercom indication are inhibited. A basic load of ammunition is given to the vehicle together with the capability to fire.

c. **CGUN TEST, TIME MARK Messages.** The tank crew does not have to respond to all CGUN functions transmitted to their vehicle. TEST , controller access, and TIME MARK are not presented on the control panel. They are stored on the TDRS memory card for AAR.

2-17. TAMPER INDICATIONS.

a. TWGSS senses, indicates, and stores attempts to tamper with the system during combat exercises. A pop-up screen appears on the control panel when a tamper has occurred. If the tamper is not corrected within 30 seconds, a TAMPERING KILL is indicated and TWGSS is inoperable. During panel gunnery training, tampering shows up as a system error which inhibits firing until the error message is corrected.

b. The following attempts to tamper are stored on the TDRS memory card and indicated during COMBAT MODE exercises:

(1) **Disconnection of Retro Detector Units.** If a retro detector unit cable is removed, a tamper is indicated and the crew has 30 seconds to connect the cable before a TAMPERING KILL is indicated.

(2) **Disconnection of Hull Defilade Detector Units.** If a hull defilade detector unit cable is removed, a tamper is indicated and the crew has 30 seconds to connect the cable before a TAMPERING KILL is indicated.

(3) **Disconnection of Power.** The system stores on the TDRS memory card each time the tank is powered down. If the system has been switched off, it can be read on during AAR.

(4) **Alteration of Control Panel Functions.** If ammunition or other training parameters are changed, it can be found during AAR.

(5) **Disconnection of Cables.** Any cable disconnection within the system is stored as BIT errors on the TDRS Memory Card and found during AAR.

(6) **Removal of TDRS Memory Card.** If the TDRS memory card is removed and inserted, it is noted on the memory card and can be seen during AAR.

2-18. SCALED TRAINING.

a. TWGSS has the means to provide ½ scale range gunnery training. By using scaled ranges and TWGSS-equipped tanks, crews can simulate main gun and coax machine gun firing.

WARNING

Tank MUST be equipped with LRF ELF during ALL training exercises. Failure to follow this warning may result in injury or blindness to personnel.

b. Perform vehicle preparation instructions (see TM 9-6920-709-12&P-1-1).

c. Perform installation procedures (see TM 9-6920-709-12&P-1-1).

NOTE

- **For best alignment results, use a boresight panel equipped with a retro reflector unit positioned as close to 1200 meters as possible.**
- **TWGSS alignment can be performed with the TDRS memory card programmed for FULL scale panel gunnery or ½ scale panel gunnery.**

d. Perform test and alignment procedures (see TM 9-6920-709-12&P-1-1).

2-18. SCALED TRAINING (Con't).

NOTE

- **During scaled gunnery training the TDRS memory card MUST be programmed for ½ scale.**

- **During scaled gunnery training, the TWGSS laser MUST be used to determine range to target.**

e. Conduct scaled gunnery training (see TM 9-6920-709-12&P-1-1).

2-19. TRACKING TRAINING MODE.

a. TWGSS has the capability to perform tracking training exercises in panel gunnery mode against targets with a retro reflector unit installed at the center of mass of target. TWGSS may also perform tracking training exercises in combat mode against targets with turret-installed retro reflector units.

WARNING

Tank MUST be equipped with laser rangefinder (LRF) eye-safe filter (ELF) during ALL training exercises. Failure to follow this warning may result in injury or blindness to personnel.

b. Perform vehicle preparation instructions (see paragraph 2-2).

c. Input the following computer correction factors using the gunner's CCP (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

NOTE

Enter the following data with MANUAL inputs.

Ammunition	Subdesignation	Azimuth	Elevation
SABOT		0.00	0.00
HEAT	59 MILES	0.00	0.00
COAX	59 MILES	0.00	0.00
	59 MILES		

d. Perform installation procedures (see TM 9-6920-709-12&P-1-1).

e. Perform test procedures (see TM 9-6920-709-12&P-1-1).

f. Perform the following TWGSS alignment procedures (see paragraph 2-7).

(1) alignment target placement

(2) vehicle preparation and TWGSS start up

(3) system alignment

(4) cant alignment

(5) laser alignment

(6) turret position sensor (TPS) alignment

g. Perform control panel setup procedures (see paragraph 2-8).

h. Using TWGSS control panel, select TANK LRF (see paragraph 2-10).

i. Ensure that TDRS memory card has been set up for tracking training (see TM 9-6920-711-12&P-1).

j. Operation of tracking training mode:

(1) Using GUN SELECT switch, select main gun or coax (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

(2) Using AMMUNITION SELECT buttons, select ammunition type (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

(3) Select main gun ammunition type of TWGSS loader's panel or select coax.

(4) Arm weapon system (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

NOTE

The collection of tracking data will not start until gunner's or commander's control handle palm switch is pressed and will continue until one of the following events occur: tracking time has elapsed (TDRS memory card programmed time); firing of the main gun or coax; or gunner's or commander's control handle palm switch is released.

(5) Perform tracking training exercise.

(6) Set the SAFE/ARM switch to SAFE position (see TM 9-2350-255-10-1 or TM 9-2350-264-10-1).

(7) To continue tracking training, repeat steps (1) through (5).